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ABSTRACT

An analysis is made in this speech of the rates of return on investments in higher education. Results indicate that the annual rates of return are higher in every year (1961-75) than the 10 percent realized on business investments. On the basis of the evidence presented, it is concluded that Americans are not overeducated. The trends in student quality are discribed, unemployment rates of college graduates are compared to the rates of high school graduates, the so called underemployment of college graduates is evaluated, and terms relating to the rate of return on investments in higher education are defined. Methods for determining private and social investments and for valuing the resources expended for and the products of higher education instruction are presented. Statistical data are included in the discussions of changes in costs per student and two theories of wages are outlined (marginal productivity theory and job competition theory). (SPG)

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Are Americans Overeducated? Are Returns on Investments in Higher Education Lower Than Those on Alternate Investments?

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Reports that highly educated persons are now driving taxicabs in New York City, and others with doctoral degrees in modern languages are unemployed, spark renewal of the debate concerning whether Americans are overeducated. Statements of preference for highly educated taxi drivers, and of satisfaction in the fact that many of those who hold advanced degrees in modern languages are women whose foremothers were limited to lives focused on "kuche, kinder, and kirche" merely enliven the debate. Arguments for reductions in programs to educate Americans which have continued since 1647 when the General Court of Massachusetts passed the "Old Deluder, Satan" Act requiring the establishment and support of schools (Rippa), now focus on higher education and feature the terms declining quality of students, unemployment, underemployment, declining job satisfaction, and declining rates of return on investments in higher education.

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trends in student quality

Has student quality declined? The quality of students, as indicated by the Scholastic Aptitude Test (Wirtz) and the American College Test of aptitude (Munday) scores of entering freshmen, increased during the 1950s and early 1960s, as it had since 1920 (Taubman & Wales), while enrollments doubled; then scores on academic aptitude tests trended downward through 1977. The quality of college students, as indicated by achievement test scores, has been rising (Graham). The quality of students, as indicated by faculty-given grades, was stable through 1965 (Hendrickson), then trended upward as undergraduates were seen as a better prepared . . . group than theretofore (Suslow).

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unemployment of college graduates and others

The unemployment rates of high school graduates have always exceeded those of college graduates. During each of the years since 1964 the unemployment rates of high school graduates have been 35 to 78 percent higher than those of persons with one or more years of college. The rate of unemployment of college graduates at the depths of the 1974-5 recession was 2.9 percent compared to 9.1 percent for high school graduates.

underemployment of college graduates

Most college graduates are making their ways into the wide variety of occupations they seek to enter. The number of openings in occupations previously filled with college graduates, however, does not increase as rapidly as the number of college graduates; therefore college graduates move into and increase the productivity of new occupations. This has been the case for the past 800 years. In his 1971 book The Market for College-Trained Manpower: A Study in the Economics of Career Choice, Richard B. Freeman explained that college students respond quickly to changing economic rewards, and shift their fields of study and work in response to emerging opportunities. In this way adjustments occur to move the supply of college graduates prepared for particular occupations toward equilibrium with changing demand for the products of those occupations, even though students' decisions to enter institutions of higher education are better explained by social, political, and anthropological paradigms than by patterns of economic demand and technological change (Adkins). Institutions of higher education don't train students to enter occupations in response to market demand as much as they provide educational opportunities for people who create new occupations which produce goods and services for which social demand subsequently grows.

The allegation that the job satisfaction of young workers is declining has not been substantiated. Ann Stauffer Bisconti and Lewis C. Solmon,

evaluating workers' job satisfaction, found that younger workers were less satisfied with their jobs than older workers during each of the years 1958 through 1973.

In related research Solmon found that the great majority of college graduates holding jobs unrelated to their major programs of study in college were doing so voluntarily, that most of this group were satisfied with their jobs, and that the difference in job satisfaction between those with jobs related to their college major and others was slight. These findings are consistent with those of a study by Anne M. Young in 1974. Indeed, college educated people gain more satisfaction from their work than do others (Bowen, pages 161 & 2).

rates of return on investments in higher education

Despite these statistics, the terms overeducated and underemployed are being used to describe college graduates who are performing unfulfilling work below their capabilities, and these labels are often applied to college graduates in occupations unrelated to their major programs of study, and these labels are sometimes applied to all college graduates in other than the traditional college occupations. Freeman in his 1976 book The Overeducated American cuts through the Gordian difficulties in making these terms measurably specific by stating that overeducation and underemployment are evidenced by rates of return on investments in higher education that are markedly lower than has historically been the case. Annual rates of return on social investments in higher education instruction that are lower than the 10% realized on business investments would be an even stronger indication of overeducation.

private and social investments

The rate of return on the investment in higher education instruction is the measure of productivity that relates the costs of resources expended in instruction to the values of benefits produced by instruction. In this measure,

costs, which are concentrated in a brief span of years in early adulthood, and the stream of benefits, which is spread over most of the remainder of a lifetime, are combined in computation of the internal rate of return. In this computation, benefits in the form of additional earnings of college graduates over those of high school graduates of equal ability are discounted to recognize that far-distant benefits are valued less highly than benefits just a few years in the future.

Rate of return computations usually address one of two issues: The first is the economic benefit realized by persons making individual investments in higher education. This private rate of return computation summarizes present costs and future benefits from a personal perspective. The costs are the costs which college and university students face: income foregone, tuition, books, etc. The benefits are equal to the extra, after tax, income realized by individual graduates over what they would have earned with less schooling. The second issue is the economic benefit realized by society as a whole as a result of making investments in higher education instruction. This social rate of return is based not only on the costs borne by private persons pursuing higher education but also on the investments made by taxpayers through property tax exemptions, student financial aids, direct appropriations of operating funds, and so forth. The social benefits are equal to the extra, before tax, income of college graduates over those high school graduates of equal academic aptitude who did not go on to college.

valuing the resources expended for higher education instruction

The computations reported here are rates of return on social investments in the higher education of men and women in all institutions of higher education in the United States, privately and publicly controlled. Instructional resources, such as faculty and supporting staff, supplies, services, and equipment, are valued at actual purchase price. Physical plant capital is valued at the cost of debt service on bonds in the amount equivalent to the share of higher education plant devoted to instruction. Property and sales tax exemptions, which

colleges and universities enjoy as social subsidies, are valued at prevailing tax rates (TABLE 1). The incomes of students attending college are subtracted from the incomes of other persons of the same age, ability, and previous education, to estimate income foregone--a measure of the value of student time and effort, and also a measure of the value of the product that society foregoes because students are in college (TABLE 2). The direct student financial aid subsidies provided by taxpayers are estimated. The portion of resources expended as investment (71 percent) is then separated from that expended for consumption, i.e., the immediate joys and pleasures of being in college. Finally, the total investment cost for each year is divided by the total number of college students in each of the years during which students who entered during a given year continue pursuit of undergraduate, professional, and graduate degrees (Witmer, 1976).

TABLE 1

Costs per Student of College Education in 1961-75*
(in constant 1977 dollars)**

Year (a)	General Operations*** (b)	Physical Plant*** (c)	Property and Sales Taxes*** (d)	Financial Aids*** (e)	Public Cost Subtotal*** (b+c+d+e=f)	Tuition and Fees (g)
1961	$942	$226	$104	$136	$1,408	$988
1962	1,033	225	103	148	1,509	1,015
1963	1,139	239	104	160	1,642	1,072
1964	1,154	250	100	163	1,667	1,045
1965	1,055	227	88	147	1,517	932
1966	1,215	288	87	177	1,767	933
1967	1,320	272	83	194	1,869	915
1968	1,555	310	87	201	2,153	916
1969	1,706	390	90	205	2,391	912
1970	1,729	424	90	198	2,441	903
1971	1,540	308	86	202	2,136	910
1972	1,629	318	85	197	2,229	897
1973	1,683	373	83	190	2,329	885
1974	1,567	338	75	172	2,152	864
1975	1,447	331	78	161	2,017	824

* (American Council on Education and U.S. Office of Education).
** Based on the Higher Education Price Index (Halstead).
*** Net of costs covered by tuition and fees.

TABLE 2

Income Foregone per College Student, Ages 18-25 in 1961-75*
(in constant 1977 dollars)**

Year	Age: 18	19	20	21	22	23	24	25
1961	$715	--	--	--	--	--	--	--
1962	846	1690	--	--	--	--	--	--
1963	972	1674	2263	--	--	--	--	--
1964	1101	1648	2172	2552	--	--	--	--
1965	1232	1631	2077	2422	4110	--	--	--
1966	1356	1611	1951	2290	4460	1952	--	--
1967	1474	1593	1841	2114	4770	2013	2809	--
1968	1600	1570	1746	1980	4726	1757	2334	4505
1969	1575	1318	1898	2837	4076	2150	2093	4772
1970	1581	1060	2042	3572	3168	2668	1887	4845
1971	1568	919	2022	3383	3710	5664	1710	4011
1972	1528	649	1997	2998	4175	8607	1606	3251
1973	1242	1217	1496	3139	3430	4175	1818	3132
1974	961	1708	1191	3442	2773	2578	1261	3102
1975	582	447	1539	2167	2204	3819	2039	4530

* From U.S. Bureau of the Census, "March 1962 Combined Current Population Survey - OCG File Tapes," and successors. Weighted to reflect proportions of men and women enrolled.

** Based on Consumer Price Index (American Council on Education).

valuing the products of higher education instruction

The value of the diverse products of investing in higher education instruction in the United States is summarized simultaneously in the differential productive contributions to society, and in the concomitant differential incomes of former college students compared with those of high school graduates who did not enter college (TABLE 3). In a preliminary research step, cross-sectional data from the U.S. Bureau of the Census describing incomes of groups of persons of different ages, with different levels of education, are converted to a longitudinal basis. This represents the estimated future income experiences of groups of people over a lifetime. Such estimates are not merely upward adjustments which project current trends, but are extrapolations based on

studies of multiple correlations among elements such as birth rates, college graduation rates, expenditures for higher education as a share of Gross National Product, ratios of first time college enrollees to high school graduates, and differences in the earnings of college and high school graduates. Adjustments for differential rates of mortality, morbidity, and unemployment are incorporated. The difference in earnings ascribable to higher education instruction and study (78 percent) is then separated from that attributable to native ability, motivation, restrictionism, family socioeconomic status, and other factors (22 percent) before the rate of return is computed (Welch, 1974).

TABLE 3

Median Income of Persons with Income, Age 25 and Older*
(in 1977 dollars)**

	Men				Women			
	Years of School Completed				Years of School Completed			
Year (a)	High School,4 (b)	College,4 or more (c)	Difference (c-b=d)	Ratio (d/b=e)	High School,4 (f)	College,4 or more (g)	Difference (g-f=h)	Ratio (h/f=i)
1965	$12,277	$17,200	$4,923	40.1%	$4,836	$8,866	$4,030	83.3%
1966	12,796	18,184	5,388	42.1	4,940	8,811	3,871	78.4
1967	13,010	18,957	5,947	45.7	5,225	9,291	4,066	77.8
1968	13,328	19,407	6,079	45.6	5,298	9,146	3,848	72.6
1969	13,798	20,049	6,251	45.3	5,301	9,517	4,216	79.5
1970	13,544	19,579	6,035	44.6	5,250	9,534	4,284	81.6
1971	13,459	19,440	5,981	44.4	5,323	9,804	4,481	84.2
1972	14,194	20,241	6,047	42.6	5,384	9,883	4,499	83.6
1973	14,612	19,836	5,224	35.8	5,271	9,500	4,229	80.2
1974	13,729	18,321	4,592	33.4	5,118	8,992	3,874	75.7
1975	13,183	18,584	5,401	41.0	5,068	9,276	4,208	83.1

* (U.S. Bureau of the Census).
** Based on the Consumer Price Index (American Council on Education).

discounting the values of resources and products

One should not, of course, merely subtract the sum of the values of resources expended from the values of the products of higher education instruction represented by differential incomes in each expected year of life. Resources are used at different times during the period of investment, and incomes are not only realized at different times, but the value of a given level of income during the years closely following graduation greatly exceeds the value of equal income later in life. Therefore, as a final step, the computer discounts the costs of resources expended and the differential incomes, which represent the resulting products, to the year in which the decision to enter college is commonly made, until the discounted value of costs is equal to the discounted value of income, and then reports this discount rate as the rate of return (Witmer, 1976).

results of rate of return studies

The results of computations of rates of return on social investments in higher education instruction for men and for women who graduated from high school and entered college during the years 1961 through 1975, for which comprehensive income data are available (U.S. Bureau of the Census), are displayed in TABLE 4. The annual rates of return are higher in every year than the 10% realized on business investments. The rates of return for 1975, the most recent year, are not markedly lower than has historically been the case. On the basis of the evidence before us, Americans are not overeducated!

TABLE 4

Annual Rates of Return on Social Investments in Higher Education for Men and for Women, 1961-75

	Men			Women			All Persons		
Year*	Social Costs**	Income Differences***	Rates of Return****	Social Costs**	Income Differences***	Rates of Return****	Social Costs**	Income Differences***	Rates of Return****
1961	$17,152	$286,367	14.2%	$11,176	$284,450	16.2%	$14,863	$285,633	15.0%
1962	18,017	286,501	13.9	10,562	291,517	16.7	15,184	288,407	15.0
1963	18,358	288,041	13.7	10,028	307,943	17.5	15,168	295,663	15.2
1964	18,855	291,638	13.7	9,433	306,649	17.9	15,105	297,612	15.4
1965	19,532	295,831	13.5	9,986	313,910	17.2	15,666	303,153	15.0
1966	21,375	293,039	13.0	9,617	307,943	17.6	16,648	299,030	14.8
1967	25,338	296,497	12.1	9,986	322,968	17.2	19,074	307,297	14.2
1968	23,020	299,235	12.5	10,321	329,172	16.5	18,121	311,659	14.2
1969	22,803	302,744	13.0	10,598	336,163	16.0	17,665	316,813	14.3
1970	21,746	306,825	13.5	10,749	342,465	15.7	17,028	322,115	14.4
1971	20,959	313,191	14.1	9,996	340,059	15.8	16,157	324,959	14.8
1972	19,945	320,663	14.5	9,059	341,102	16.1	15,068	329,820	15.2
1973	19,413	332,388	15.2	10,008	345,646	15.1	15,162	338,381	15.2
1974	15,890	337,805	17.2	10,346	353,767	14.8	13,356	345,100	16.1
1975	14,682	347,735	18.4	10,712	358,700	14.5	12,852	352,790	16.6

* Year of high school graduation and entry to college.
** In constant 1977 dollars.
*** Portion of income difference attributable to higher education, in constant 1977 dollars.
**** The relationships among costs, income differences, and rates of return are not fixed because of fluctuations in the timing of expenditures, economic growth, and income.

discussion of changes in costs per student

Multiple correlation and regression studies indicate that there is a stronger relationship between changes in costs per student and changes in annual rates of return on investments in higher education instruction than between the latter and changes in incomes. The most important determinant of changes in costs per student is change in the number of persons in successive cohorts of college students (TABLE 5). Institutions of higher education are evidently unable, or unwilling, to adjust expenditures for instruction in full response to student population changes.

TABLE 5

Investments in the Instruction of Cohorts of Students Who Entered Institutions of Higher Education in 1961-75*
(in thousands of constant 1977 dollars)

	Men		Women			Total	
Year	Number	Investments	Number	Ratio	Investments	Number	Investments
(a)	(b)	(c)	(d)	(d/g=e)	(f)	(g)	(h)
1961	649,474	$11,772,035	462,902	.416	$ 4,761,423	1,112,376	$16,533,458
1962	683,071	13,112,382	490,765	.418	4,711,261	1,173,836	17,823,643
1963	742,343	14,551,084	542,307	.422	4,933,986	1,284,650	19,485,070
1964	801,615	15,839,519	593,850	.426	5,239,042	1,395,465	21,078,561
1965	947,000	19,082,569	695,000	.423	6,640,790	1,642,000	25,723,359
1966	894,916	20,011,430	670,648	.428	6,052,524	1,565,564	26,063,954
1967	992,164	26,051,432	744,587	.429	7,076,024	1,736,751	33,127,456
1968	1,089,412	25,693,629	818,526	.429	8,172,109	1,907,938	33,865,738
1969	1,112,403	26,169,436	869,689	.439	8,843,615	1,982,092	35,013,051
1970	1,159,393	25,830,319	920,851	.443	9,592,673	2,080,244	35,422,992
1971	1,178,399	25,159,230	957,548	.448	9,351,706	2,135,947	34,510,936
1972	1,166,197	23,904,879	1,005,071	.463	8,811,944	2,171,268	32,716,823
1973	1,192,464	23,916,016	1,055,636	.470	10,169,541	2,248,100	34,085,557
1974	1,255,985	20,646,320	1,136,884	.475	11,313,777	2,392,869	31,960,097
1975	1,340,621	19,843,758	1,202,931	.480	12,382,874	2,507,552	32,226,632

* (American Council on Education and U.S. Office of Education).

The most important resource expended in higher education instruction is student time and effort, the declining cost of which is indicated by data describing income foregone, in TABLE 2. The second most important resource is faculty time and effort, the value of which can be inferred from data in TABLE 6. Although faculty salaries, during the period 1961 through 1971, increased more rapidly than the prices of other services and goods, they have lagged since 1972 despite the growth of unionization and collective bargaining. Will the decline in faculty salaries relative to salaries and wages in other occupations continue, and if so, will the quality of faculty effort and the quality of the related products of higher education decline? The matter surely deserves continuing attention.

TABLE 6

Prices of Resources of Special Importance
in College Education 1961-75
(in 1977 dollars)*

Year	Faculty Time and Effort, 9 Months				Professional Service of Administrative Officers 12 Mos.	Hard-cover Book	Periodical Subscription
	Professors	Associate Professors	Assistant Professors	Instructors			
1961	$20,729	$15,930	$13,379	$10,878	$20,403	$11.64	$11.28
1962	21,521	16,468	13,795	11,192	21,270	11.69	11.73
1963	22,331	17,145	14,336	11,625	22,101	12.83	12.36
1964	23,289	17,642	14,741	11,917	23,105	13.40	12.84
1965	24,171	18,293	15,170	12,246	23,998	14-54	13.21
1966	24,957	18,824	15,577	12,450	24,851	14.67	13.75
1967	25,866	19,449	16,058	12,791	25,631	14.35	14.40
1968	26,448	19,878	16,406	13,013	26,372	14.60	14.91
1969	26,686	20,116	16,573	13,104	26,704	15.44	15.23
1970	26,825	20,174	17,007	13,187	25,891	18.00	16.07
1971	27,123	20,426	16,805	13,453	25,495	19.62	17.27
1972	27,102	20,443	16,859	13,642	25,976	18.61	18.96
1973	26,644	20,083	16,578	13,319	25,782	16.46	21.85
1974	25,290	19,019	16,511	13,372	24,244	17.13	42.01
1975	24,363	18,375	15,126	12,260	23,130	18.04	43.38

* Based on the Consumer Price Index and data from Halstead.

While the constant dollar public cost per student increased by 43% during the past fifteen years, tuition and fees collected decreased by over 16%. This extraordinary change indicates that the rates of return on private investments in higher education may now be markedly higher than has historically been the case. A careful study including changes in private costs, incomes, and income tax effects is in order.

discussion of two theories of wages

The marginal productivity theory of wages assumes that people come into the world of work with a set of abilities and compete for jobs and wages on the basis of productivity. Education is crucial in this competition because it creates abilities and increases people's potential to be productive. The marginal productivity theory implies that increases in the educational level of low income workers

will have three powerful and beneficial effects: First, education that transforms low ability persons into high ability persons raises their productivity and therefore raises their wages and incomes. Second, it reduces the total supply of low ability workers, which in turn leads to increases in their wages as fewer people are available to do the menial and distasteful work. Third, it creates an oversupply of high ability workers, and causes their wages to be bid down. The theoretical net result is an increase in total output because of the increase in productivity of better educated workers, a flow of rewards to the meritorious, and a more equal distribution of wages and incomes. What a bright prospect! Indeed, what in the political economy could be better?

Reviewing the transition to universal secondary education which has been completed in the United States since World War II we note that: (a) the percentage of 18 year old men earning high school diplomas increased from 49 in 1947 to 74 in 1967 and has fluctuated between 73 and 76 percent each year since; (b) there is a high, positive correlation (the coefficient of .9479 is significant at the .001 level of confidence) between the percentage of each cohort graduating from high school and the difference between average incomes of elementary and high school graduates (age 25 and older) nine years later; (c) from 1956 to 1975 the average constant dollar incomes of elementary and high school graduates increased substantially, presumably reflecting the increased productivity flowing from the increased education, but, (d) the distribution of incomes <u>became more unequal</u> as the mean incomes of male high school graduates increased from 143 percent of the incomes of male elementary school graduates in 1956 to 159 percent in 1975! In 1970 I noticed this growing gap between the incomes of high school and elementary school graduates and boldly predicted that the same thing

would happen to the relationship between average high school and college incomes as the transition to universal higher education takes place and the college degree replaces the high school diploma as an entrance requirement for good employment (Witmer, 1970).

The transition to universal higher education is sufficiently begun to yield observations that: (a) the percentage of each age cohort of men earning baccalaureate or first professional degrees increased from 12 in 1947 to 25 in 1967 to 30 percent in 1972, and is still increasing; (b) there is a high, positive correlation (the coefficient of .8518 is significant at the .001 level of confidence) between the percentage of each age cohort graduating from college and the difference between average incomes of high school and college graduates (age 25 and older) ten years later; (c) from 1956 to 1975 the average constant dollar incomes of high school and college graduates increased substantially, but, (d) the distribution of incomes also became more unequal as the mean incomes of male college graduates increased from 152 percent of mean high school graduates in 1956 to 155 percent in 1975.

In 1975 Lester C. Thurow, an M.I.T. economist who is currently an advisor to President Carter's administration, described a job competition theory of wages to account for the stubborn and surprising fact that increased education yields increased inequality in incomes. His job competition theory rests on the propensity of employers to reduce labor training costs by hiring the best educated persons available at prevailing rates of pay (equal to or below the value of marginal product) and to increase those rates of pay as the productivity of the firm (not the productivity of the individual person) increases. When larger numbers of better educated persons become available, they are hired for the higher paying jobs first and those with less education are left unemployed longer and take the lower paying jobs. Those with the least education are unemployed longest and, where minimum wages are set by law above the value of marginal product, the least educated become permanently unemployed. On the other hand when smaller numbers of better

educated persons are available, many with less education are employed in higher paying jobs and the gap in average incomes gets smaller.

If the job competition theory and its underlying assumptions are as correct as they seem to be, rates of return on investments in higher education instruction will increase when the number of college graduates increases, and decrease when the number of college graduates decreases! We will observe a major test of these two competing theories as we pass through periods of high and low enrollment in college during the next twenty years.

perspectives on rates of return

Rates of return on investments in college education contrast sharply with the annual rates of 10% realized on business investments, and constitute a strong argument for a public policy of maintaining low costs to students while increasing government support of both privately and publicly controlled colleges.

Rate of return analyses indicate where investment opportunities exist Theoretically, successive investments where rates of return are high should eventuate in equal rates of return on investments in all alternatives. There are, however, at least seven reasons why the rates of return on investments in higher education instruction have not declined to the level of returns on business investments, nor stabilized at a uniform rate, despite prodigious increases in college enrollment and expenditures indicated by the data in TABLE 5.

- Market imperfections persist. Knowledge of costs and incomes is not universal; restriction on entry to fields of study like medicine continues; access to college is very limited in some places; and student financial aid programs are not fully funded.
- Although no more than 2 percent of a college graduate's income may be attributed to the quality of the institution (Solmon), there is great variability in the value of different major programs of study. Note, for example, the results of research undertaken in 1967 and 1968 which are displayed in TABLE 7.

TABLE 7

Annual Rates of Return on Private Investment
in Selected Programs of Higher Education Instruction for Men

Investigator (a)	Low part of range		High part of range	
	Program (b)	Rate of Return (c)	Program (d)	Rate of Return (e)
Craft (1968	Architecture	8.5%	Veterinary Medicine	19.8%
Stager (1968)	Education	7.3%	Dentistry	23.7%
Khanna and Bottomley (1969)	Mechanical Engineering	9.5%	Statistics	15.0%
Witmer (1971)	Agronomy	10.4%	Mineral Engineering	22.5%

- Colleges and universities participate in the creation of the future. "Confronted with a contingent, indeterminate world scientists project hypotheses which, when acted on, make the world more determinate. In making it more determinate they actually have a hand to some degree in creating the kind of world we live in, of determining our own history (Brubacher, page 121)." Prophecy in the university not only leads to progress, but also defines and institutionalizes progress.

- College experience provides education in the efficient use of factors of production. Not only does it increase the value of one factor of production, labor, but it promotes effectiveness in the introduction and combination of other factors (Welch, 1970).

- College experience also promotes efficiency in purchasing as buying decisions become more complex in a technologically advancing environment (Davis and Morrall, 1974).

- College students have been greatly increasing their labor force participation rates, from 27 percent of the women and 34% of the men in 1966 to 40 percent of all full-time students in 1976, while the labor force participation rates of youths not in college have been changing only slightly (Young, 1977). This results in declining constant dollar costs of income foregone.

- Finally, rates of return on investments in higher education have not greatly declined because institutions of higher educatien realize substantial economies of scale as they grow.

Better understandings of the related effects of faculty salary changes, economies of scale, changes in students' programs of study, and wage competition which will grow out of further study will improve our ability to identify the point at which Americans will be overeducated and the public interest will be well served by shifts to alternate investments.

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